

REMARKS

In view of the above amendments and following remarks, reconsideration and further examination are requested.

Initially, the Examiner is respectfully requested to consider the Information Disclosure Statement filed April 30, 2004.

The specification and abstract have been reviewed and revised to make editorial changes thereto and generally improve the form thereof, and a substitute specification and abstract are provided. No new matter has been added by the substitute specification and abstract.

The instant invention pertains to a component recognizing method and apparatus, and a component mounting method and apparatus. Such methods and apparatus are generally known in the art but suffer from drawbacks as discussed on pages 1-7 of the original specification. Applicants have addressed and resolved these drawbacks by providing a unique component recognizing method and apparatus, and component mounting method and apparatus.

Specifically, Applicants have addressed and resolved these drawbacks by developing a component recognizing method and apparatus that continuously recognizes surfaces of plural components, which surfaces are located at different levels. With reference to Figures 2A-2D, for example, the inventive component recognizing method and apparatus includes component holding members 24-27 that respectively hold components 56-59 of varying thicknesses, such that bottom surfaces of these components to be recognized are located at different levels relative to one another. In order to recognize these bottoms surfaces so as to perform any necessary adjustment of the components prior to mounting the components onto an object, these bottom surfaces are recognized by recognition unit 61; however, the recognition unit 61 can only recognize the bottom surfaces when the bottom surfaces are within a recognizable range L of the recognition unit 61. Thus, in order to continuously recognize the bottom surfaces of the components 56-59, the component holding members 24-27 are transversely moved in direction N while at the same time being moved up or down so as to ensure that a corresponding bottom surface is received within the recognizable range L of the recognition unit 61.

Independent claims 32, 34, 36, 38, 40, 42, 53, 54, 56 and 59 are believed to adequately bring out the inventive feature of the invention by reciting simultaneous transverse and vertical movement

of component holding members necessary to bring surfaces of components into a recognizable range of a recognition unit.

Claims 1-13 and 22-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakurai. And, claims 14-21 were objected as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The indication of allowable subject matter is greatly appreciated; however, claims 14-21 have not been rewritten in independent form, because for reasons to follow it is respectfully submitted that each of the independent claims is allowable over Sakurai.


In this regard, as alluded to above, each of the independent claims now recites that the component holding members are to be transversely moved while any necessary vertical adjustments thereof are made so as to ensure that surfaces of the components, to be recognized, are brought into a recognizable range of a recognition unit so as to be recognized. While Sakurai does disclose plural component holding members that are vertically moved to adjust a recognition height of these component holding members, Sakurai fails to disclose or suggest that this vertical adjustment is to be made while the component holding members are being transversely moved. Because Sakurai does not disclose or suggest such simultaneous and transverse movement, each of the independent claims is allowable over Sakurai, whereby claims 32-61 are allowable.

In view of the above amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and an early Notice of Allowance is earnestly solicited.

If after reviewing this Amendment, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicants' undersigned representative by telephone to resolve such issues.

Respectfully submitted,

Takashi YAZAWA et al.

By: 
Joseph M. Gorski
Registration No. 46,500
Attorney for Applicants

JMG/edg
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
June 16, 2004